WHAT IS CLAIMED IS:

1. A method of providing electrical power to multiple power consuming devices, the method comprising the steps of:

interconnecting each of the power consuming devices to a fiber optic line, so that each of the power consuming devices is selectable for operation thereof by transmitting one of multiple optical wavelength bands through the fiber optic line, and wherein each of the transmitted optical wavelength bands causes a respective at least one of the power consuming devices to be selected; and

transmitting various of the optical wavelength bands through the fiber optic line, thereby supplying electrical power to corresponding selected ones of the power consuming devices.

2. The method according to Claim 1, wherein the transmitting step further comprises:

selecting a first one of the power consuming devices for operation thereof by transmitting light having a first wavelength through the fiber optic line, thereby causing electrical power to be supplied to the first power consuming device; and

transmitting light having a second wavelength through the fiber optic line, thereby selecting a second one of the power consuming devices and causing electrical power to be supplied to the second power consuming device.

3. The method according to Claim 1, wherein the interconnecting step further comprises interconnecting one of multiple control modules between each of the power consuming devices and the fiber optic line, each of the control modules being interconnected between a respective one of the power consuming devices and the fiber optic line.

4. The method according to Claim 3, wherein each of the control modules is responsive to the corresponding optical wavelength band of the respective power consuming device.

5. The method according to Claim 4, wherein in the transmitting step, light output from each of the control modules is converted to electrical power supplied to the respective power consuming device when the corresponding optical wavelength band is transmitted through the fiber optic line.

6. The method according to Claim 1, wherein the interconnecting step further comprises interconnecting one of multiple WDM drops between the fiber optic line and each of the power consuming devices, each of the WDM drops being interconnected between the fiber optic line and a respective one of the power consuming devices.

7. The method according to Claim 6, wherein the interconnecting step further comprises interconnecting one of multiple opto-electric converters between each WDM drop and the respective power consuming device, each opto-electric converter being interconnected between one of the WDM drops and the respective power consuming device.

8. The method according to Claim 6, wherein each of the WDM drops includes an optical circulator and a Bragg grating interconnected to the fiber optic line.

9. The method according to Claim 1, wherein the interconnecting step further comprises interconnecting multiple optical couplers to the fiber optic line, and interconnecting one of multiple optical filters between each of the power consuming devices and a corresponding one of the optical couplers, each of the optical filters passing a selected optical wavelength band and being

interconnected between one of the power consuming devices and the corresponding optical coupler.

10. The method according to Claim 1, wherein the transmitting step further comprises simultaneously transmitting multiple ones of the optical wavelength bands through the fiber optic line, thereby selecting corresponding multiple ones of the power consuming devices for operation thereof.

11. The method according to Claim 10, wherein the multiple optical wavelength bands are transmitted through the fiber optic line by interconnecting a first optical coupler to the fiber optic line, the first optical coupler receiving separate optical wavelength bands from multiple tunable filters.

12. The method according to Claim 11, wherein each of the tunable filters is interconnected between the first optical coupler and a second optical coupler, each of the tunable filters receiving a relatively broad optical wavelength band from the second optical coupler.

13. The method according to Claim 10, wherein the multiple optical wavelength bands are transmitted through the fiber optic line by interconnecting an optical coupler to the fiber optic line, the optical coupler receiving separate optical wavelength bands from respective multiple tunable lasers.

14. The method according to Claim 1, wherein in the transmitting step, electrical power is supplied to the corresponding selected ones of the power consuming devices by providing electrical connections between at least one power supply and the corresponding selected ones of the power consuming devices.

15. The method according to Claim 14, wherein the electrical connection providing step is performed by supplying electrical power from an opto-electric converter to a switch for each of the selected ones of the power consuming devices.

16. The method according to Claim 1, wherein in the transmitting step, electrical power is supplied to the corresponding selected ones of the power consuming devices in a manner which transmits data to the corresponding selected ones of the power consuming devices.

17. The method according to Claim 16, wherein data is transmitted to the corresponding selected ones of the power consuming devices in digital form.

18. The method according to Claim 16, wherein data is transmitted to the corresponding selected ones of the power consuming devices in analog form.

19. The method according to Claim 1, wherein the power consuming devices are data storage devices, and wherein in the transmitting step, data transmitted through the fiber optic line is stored in corresponding selected ones of the data storage devices.

20. The method according to Claim 1, wherein the power consuming devices are devices having programmed functions, and wherein in the transmitting step, the functions are performed in response to the supplying of electrical power to the corresponding selected ones of the devices.

21. The method according to Claim 1, further comprising the step of interconnecting at least one sensor in the fiber optic line.

22. The method according to Claim 21, wherein the sensor includes an intrinsic fiber Bragg grating.

23. The method according to Claim 21, wherein multiple ones of the sensors are interconnected in the fiber optic line.

24. An electrical power distribution system, comprising:

a fiber optic line;

multiple power consuming devices; and

multiple control modules interconnected between the fiber optic line and the power consuming devices, each of the control modules being interconnected between the fiber optic line and one of the power consuming devices, and each of the control modules being operative to select the respective power consuming device for supplying electrical power thereto in response to one of multiple optical wavelength bands transmitted through the fiber optic line, each of the optical wavelength bands causing one of the control modules to select the respective power consuming device for supplying electrical power thereto.

25. The system according to Claim 24, wherein the multiple optical wavelength bands are transmitted singly through the fiber optic line.

26. The system according to Claim 24, wherein the multiple optical wavelength bands are transmitted simultaneously through the fiber optic line.

27. The system according to Claim 26, further comprising multiple tunable filters and a first optical coupler interconnected to the fiber optic line, the first optical coupler receiving separate optical wavelength bands from the multiple tunable filters.

28. The system according to Claim 27, wherein each of the tunable filters is interconnected between the first optical coupler and a second optical coupler, each of the tunable filters receiving a relatively broad optical wavelength band from the second optical coupler.

29. The system according to Claim 26, further comprising an optical coupler interconnected to the fiber optic line, the optical coupler receiving separate optical wavelength bands from multiple lasers.

30. The system according to Claim 29, wherein at least one of the multiple lasers is a tunable laser.

31. The system according to Claim 24, wherein each of the control modules includes a WDM drop interconnected between the fiber optic line and the respective power consuming device.

32. The system according to Claim 31, wherein each of the WDM drops includes an optical circulator and a Bragg grating interconnected to the fiber optic line.

33. The system according to Claim 32, further comprising an opto-electric converter interconnected between each optical circulator and the respective power consuming device.

34. The system according to Claim 24, wherein each of the control modules includes an optical coupler interconnected to the fiber optic line and an optical filter interconnected between the optical coupler and the respective power consuming device, and the optical filter being configured to permit the respective optical wavelength band to pass therethrough.

35. The system according to Claim 34, further comprising an opto-electric converter interconnected between each optical filter and the respective power consuming device.

36. The system according to Claim 24, wherein each of the control modules is connected to a switch interconnected between at least one power supply and the respective power consuming device.

37. The system according to Claim 36, wherein the switch is a field effect transistor.

38. The system according to Claim 24, wherein electrical power is supplied to the selected power consuming devices in a manner which transmits data in a selected one of digital and analog form.

39. The system according to Claim 24, wherein the power consuming devices are data storage devices.

40. The system according to Claim 24, wherein the power consuming devices are devices having programmed functions, each of the devices performing its respective function in response to electrical power being supplied thereto.

41. The system according to Claim 24, further comprising at least one sensor interconnected in the fiber optic line.

42. The system according to Claim 41, wherein the sensor includes an intrinsic fiber Bragg grating.

43. The system according to Claim 41, wherein there are multiple sensors interconnected in the fiber optic line.

44. A well tool control system for selectively supplying electrical power to multiple electrical power consuming well tools in a subterranean well, the system comprising:

a fiber optic line extending in the well;

multiple control modules interconnected to the fiber optic line; and

multiple opto-electric converters, each of the opto-electric converters being interconnected between a respective one of the control modules and a respective one of the well tools, and

wherein each of the control modules is responsive to one of multiple optical wavelength bands transmitted through the fiber optic line to cause light to be transmitted to the respective opto-electric converter and thereby cause electrical power to be supplied to the respective well tool.

45. The system according to Claim 44, wherein each of the control modules includes a WDM drop interconnected between the fiber optic line and the respective well tool.

46. The system according to Claim 45, wherein each of the WDM drops includes an optical circulator and a Bragg grating interconnected to the fiber optic line.

47. The system according to Claim 44, wherein each of the control modules includes an optical coupler interconnected to the fiber optic line and an optical filter interconnected between the optical coupler and the power consuming device, the optical filter passing a selected one of the optical wavelength bands.

48. The system according to Claim 44, wherein the multiple optical wavelength bands are transmitted singly through the fiber optic line.

49. The system according to Claim 44, wherein the multiple optical wavelength bands are transmitted simultaneously through the fiber optic line.

50. The system according to Claim 49, further comprising multiple tunable filters and a first optical coupler interconnected to the fiber optic line, the first optical coupler receiving separate optical wavelength bands from the multiple tunable filters.

51. The system according to Claim 50, wherein each of the tunable filters is interconnected between the first optical coupler and a second optical coupler, each of the tunable filters receiving a relatively broad optical wavelength band from the second optical coupler.

52. The system according to Claim 49, further comprising an optical coupler interconnected to the fiber optic line, the optical coupler receiving separate optical wavelength bands from multiple lasers.

53. The system according to Claim 52, wherein at least one of the multiple lasers is a tunable laser.

54. The system according to Claim 44, wherein each of the opto-electric converters is connected to a switch interconnected between at least one power supply and the respective well tool.

55. The system according to Claim 54, wherein the switch is a field effect transistor.

56. The system according to Claim 44, wherein electrical power is supplied to the selected well tools in a manner which transmits data in a selected one of digital and analog form.

57. The system according to Claim 44, wherein the well tools are data storage devices.

58. The system according to Claim 44, wherein the well tools are devices having programmed functions, each of the devices performing its respective function in response to electrical power being supplied thereto.

59. The system according to Claim 44, further comprising at least one sensor interconnected in the fiber optic line.

60. The system according to Claim 59, wherein the sensor includes an intrinsic fiber Bragg grating.

61. The system according to Claim 59, wherein there are multiple sensors interconnected in the fiber optic line.